

## REMARKS

In the Office Action, claims 17-22 and 27-29 were examined and stand rejected. Applicants amend claims 17 and 27 and submit that no new matter is added herein as those amendments by the claims as previously amended. No claims are cancelled. Claims 30 and 31 are added. Applicants assert that no new matter is added herein as additional claim 30 is supported at page 12 lines 15-16 and additional claim 31 is supported at page 14 lines 12-16 of the application as originally filed. Applicants respectfully request reconsideration of pending claims 17-22 and 27-29, as amended, and consideration of additional claims 30-31 in view of the following remarks.

### I. 35 U.S.C. §§ 102 and 103: Rejection of Claim 27

The Patent Office rejects Claim 27 under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,166,439 issued to Cox ("Cox"). Applicants respectfully traverse this rejection.

Regarding Claim 27, amended Claim 27 recites the following claim features, which are neither disclosed nor suggested by Cox:

at least one bond pad formed directly on the insulating layer;  
a composite film comprising:  
a first layer, and  
a second layer of a material different than a material of the first layer,

wherein the first layer is disposed between the insulating layer and the second layer,

wherein the first layer and the second layer comprise one common chemical element other than silicon, and

wherein the second layer is a passivation layer formed on the first layer and a portion of a top surface of the bond pad that is less than the entire top surface. [Emphasis added.]

The Patent Office cites conductive line 54 to describe a "bond pad formed directly on the insulating layer", as described for claim 27. However, the Patent Office

has not cited and Applicants are unable to find any description in Cox that conductive line 54 is a bond pad. For example, according to Applicants' Specification, without limitation thereto, it may be necessary to supply voltage signals to bond pads from a package to which the integrated circuit device is affixed (see Applicants' Specification page 8, lines 15-18), and such bond pads may be located around the periphery of the top surface of an integrated circuit device (see page 8, line 26 through page 9, line 1). On the other hand, Cox describes conductive lines 54, 56, and 58 as making up conductive pattern 52, such as many thousands or even millions of conductive lines that exist in an integrated circuit to provide necessary electrical connections between devices of the integrated circuit (see col. 6, lines 1-8). Specifically, Cox describes conductive lines 54, 56 and 58 as adjacent conductive lines of conductive pattern 52 which has an average density of conductive metal lines in a range from about 200 to about 10,000 lines per linear inch (see column 6 lines 31-35 and column 5 lines 47-52). Thus, because of a reduction in pitch between lines 54, 56 and 58, it is necessary to deposit a low K dielectric material there between to reduce conductive capacitance crosstalk for the adjacent conductive lines (see column 6 lines 17-35). Hence, since the conductive lines of Cox do not disclose the bond pad of claim 27, Applicants respectfully request the Patent Office to withdraw the rejection above.

In addition, the Patent Office cites Fig. 4h of Cox against a passivation layer formed on the first layer and less than the entire top surface of the bond pad, as required by claim 27. However, in Fig. 4h it is clear that no such layer exists. Specifically, there is no layer shown that is formed on layer 59, as well as on less than the entire top surface of conductive line 54. Furthermore, the principle of operation and primary purpose of Cox is to use a low dielectric constant (LDC) material 59 between conductive lines including a polymeric material having a polymer having a first end including a functional group adapted to bond to an insulating layer 50a and a second end including a functional group adapted to substantially bond to dielectric material 90 deposited over the LDC material (see Abstract and column 8 lines 7-22). Moreover, Cox teaches that topside layer 90 is chosen such that the LDC material 59 bonds well with it

as well as for its UV light transparency as the device of Cox is a UV light radiation erasable programmable read only memory (EEPROM) integrated circuit (see column 9 lines 1-32). Thus, there is no motivation or suggestion for a practice of covering less than the entire top surface of line 54 in Cox with LDC material 59. In fact, it is Applicant's position that such a practice or a combination with a reference teaching such a practice is taught against by Cox because LDC material 59 over a portion of the top surface of line 54 would not increase protection and would decrease UV transparency. Specifically, if LDC material 59 were capable of being UV transparent or providing protection, such as that provided by topside layer 90, a practitioner would be motivated to cover the lines of Cox with layer 59 and not bother with the added expense in processing to form layer 90 over the lines and over layer 59. Hence, for at least this additional reason, Applicants respectfully request the Patent Office withdraw the rejection above.

## II. 25 U.S. C. §103(a): Rejection of Claims 17-19, 21-22 and 29

The Patent Office rejects claims 17-19, 21, and 22 under 35 U.S.C. §103(a) as obvious over Cox in view of Applicants' Prior Art ("APA"). Applicants respectfully traverse the Patent Office's rejection.

Applicants respectfully disagree for at least the reason that the cited references do not teach or suggest a bond pad formed directly on the insulating layer, or a passivation layer formed on a surface of the adhesion layer and less than the entire top surface of the bond pad, as required by amended claim 17.

Arguments analogous to the ones above with respect to claim 27 and Cox applies here, as well. Hence, for at least these first two reasons, Applicants respectfully request the Patent Office withdraw the rejection above of claim 17.

In addition, the Patent Office cites here that it would have been obvious to modify the semiconductor of Cox to include a first passivation layer as disclosed in

APA. However, this fails to teach or suggest the above noted limitation of claim 17 for two reasons.

First, a principle of operation of Cox is that the material and thickness of topside layer 90 is selected as preferably less than about 2 microns thick, and as substantially transparent to UV light, so that UV light may be used to erase reprogrammable cells, such as EPROM integrated circuitry (see col. 8, line 66 through col. 9, line 41). Thus, there is no motivation in Cox to form a layer of less UV transparent material in addition to topside layer 90 over conductive lines 54, 56, and 58. For example, forming LCD material 59 over conductive line 54 would defeat the principle of operation of the thickness, and UV light transparency of topside layer 90. Hence, for at least this additional reason, Applicants respectfully request the Patent Office withdraw the rejection above.

Second, as noted the primary purpose of Cox is to provide low K LDC material 59 attached to adhesion promoter layer 61 and between but not on top of conductive lines 54, 56, and 58. Hence, a practitioner would not look to the APA's SiN high K dielectric passivation layer 40 as a material to be formed between adhesion promoter layer 61 and LDC material 59, because that would increase crosstalk, which is taught against by Cox.

Claims 18, 19, 21 and 22 depend from claim 17 and therefore contain all the limitations of that claim. For at least the reasons stated with respect to claim 17, claims 18-9 and 21-22 are not obvious over the cited references. Applicants respectfully request that the Patent Office reconsider and withdraw the §103(a) rejection of claims 12, 18, 19, 21 and 22.

In addition to the reasons above, Applicants submit that claim 21 is patentable over the cited references for at least the reason that the combination of Cox and APA to use silicon nitride as a first passivation layer is improper. Specifically, as noted above for claim 17, Cox teaches against using silicon nitride between conductors because

silicon nitride is a high K dielectric and would increase crosstalk. That is why LDC material 59 is between the metal lines and SiN 90 is over the metal lines. Moreover, since Cox teaches silicon nitride layer 90 above the conductors, there is no motivation for an additional layer of silicon nitride in Cox. Hence, for at least these additional reasons, Applicants respectfully request the Patent Office withdraw the rejection above of claim 21.

### III. 25 U.S.C. §103(a): Rejection of Claim 20

The Patent Office rejects claim 20 under 35 U.S.C. §103(a) as obvious over Cox in view of APA and Japanese Patent No. 405166803 to Saito et al. (Saito). Saito is cited for disclosing an adhesion layer of silicon oxynitride. Applicants respectfully traverse the Patent Office's rejection.

Regarding claim 20, claim 20 is dependent from claim 17, and therefore contains all the limitations of that claim. For at least the reasons stated with respect to claim 17, claim 20 is not obvious over Cox and APA. Also, Saito teaches Au wiring 2, but does not teach or suggest a bond pad as required by claim 17. Moreover, Saito does not teach a passivation layer on less than an entire top surface of a bond pad, as required by claim 17. Hence, for at least these reasons, Applicants respectfully request the Patent Office withdraw the rejection above of claim 20.

In addition, Applicants respectfully disagree with the rejection for at least the reason that the Patent Office's motive to combine the references is insufficient. As a motive, the Patent Office asserts to include silicon oxynitride adhesive layer 3 as disclosed in Saito instead of adhesion layer 61 of Cox because it aids in providing excellent adhesive properties. However, the Patent Office has not cited and Applicants are unable to find any motive, teaching or suggestion in Cox that adhesion promoter layer 61 of Cox would be insufficient or could be improved upon by adding a layer of silicon oxynitride to bond LDC material 59 and insulator layer 50a. Hence, for at least

this additional reason, Applicants respectfully request the Patent Office to withdraw the rejection above.

**IV. 35 U.S.C. §103(a): Rejection of Claim 28**

The Patent Office rejects claim 28 under 35 U.S.C. §103(a) as obvious over Cox in view of Saito. Applicants respectfully traverse the Patent Office's rejection.

Claim 28 depends from claim 27. Hence, Applicants respectfully submit that Saito fails to rectify the deficiencies of Cox and APA noted above for claim 27. Arguments analogous the ones above for Saito failing to cure the deficiencies Cox and APA for claim 20 apply here as well. Thus, Applicants' respectfully request the Patent Office withdraw the rejection above for at least these reasons.

Moreover, Applicants respectfully request the Patent Office to withdraw the rejection above for at least the reason that the cited references fail to teach or suggest the first layer includes silicon oxynitride, as required by claim 28. An argument analogous to the argument above, with respect to claim 20 applies here as well. Hence, for at least this additional reason, Applicants respectfully request the Patent Office withdraw the rejection above.

**V. 35 U.S.C. §103(a): Rejection of Claim 29**

Applicants presume (a portion of text appears missing from the current Action), the Patent Office rejects claim 29 under 35 U.S.C. §103(a) as obvious over Cox in view of Saito and APA.

Claim 29 depends from claim 27. Hence, for at least the reasons described above with respect to claim 27, Applicants respectfully request the Patent Office withdraw the rejection above.

In addition, claim 29 depends from claim 28. Hence, for at least the additional reasons described above with respect to claim 28, Applicants respectfully request the Patent Office withdraw the rejection above.

In addition, as claim 29 requires a SiN passivation layer, arguments above with respect to the silicon nitride layer required in claim 21 apply here as well. Hence, for at least those additional reasons, Applicants respectfully request the Patent Office withdraw the rejection above.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for at least the same reasons given above in support of their base claims.

It should be noted that not all of the assertions made in the Office Action, particularly those with respect to the dependent claims, have been addressed here, in the interest of conciseness. Applicants reserve the right to challenge any of the assertions made in the Office Action by the Examiner, with respect to the relied upon art references and how they would relate to Applicants' claim language.

## **VI. Additional Claims 30 and 31**

Applicants submit that additional claim 30 is allowable for at least the reason that none of the references cited teach or suggest that the adhesion layer is a portion of the surface of the insulating layer, as required by claim 30. Similarly, claim 31 is allowable for at least the reason that none of the references cited teach or suggest that the adhesion layer includes a micro roughened surface of the insulator layer, as required by claim 31. Hence, for at least these reasons, Applicants respectfully request the Patent Office allow claims 30 and 31.

## CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance, and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated: August 29, 2006  
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Amber D. Saunders 08/29/06  
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